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MINNEAPOLIS, MN 55415-1002

EXAMINER

RENNER, CRAIG A

ART UNIT PAPER NUMBER

2627

DATE MAILED: 08/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/671,809

Applicant(s)

AMIN ET AL.

Examiner

Craig A. Renner

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 May 2006 & 21 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-18 is/are allowed.
- 6) ☒ Claim(s) 1-14 and 21-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. The drawings were received on 23 May 2006. These drawings are accepted.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-8 and 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Koike (US 6,177,207).

With respect to claims 1-8, Koike teaches a transducing head comprising a main pole (11); and at least one magnetic element (7/8) spaced from the main pole, wherein the magnetic element provides a potential return path for a magnetic field produced by the main pole, and has a first edge (on layer 8) closest to the main pole (as shown in FIG. 1, for instance), a second edge (on layer 7) furthest from the main pole (as shown in FIG. 1, for instance), wherein permeability of the magnetic element increases from the first edge to the second edge (lines 55-65 in column 12, for instance, i.e., the permeability of layer 7 is increased with respect to layer 8) [as per claim 1]; wherein the magnetic element is formed of a plurality of layers (7 and 8), each succeeding layer

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having greater permeability (lines 55-65 in column 12, for instance, i.e., the permeability of layer 7 is increased with respect to layer 8), and wherein a peak value of the magnetic field flowing through the potential return path during a write operation is less than a coercive force of a magnetic medium (i.e., dependent upon selection of the unclaimed magnetic medium) [as per claim 2]; wherein a ratio of permeability between adjacent layers is approximately constant (lines 55-65 in column 12, for instance, i.e., since there are only two layers, the permeability between adjacent layers would be approximately constant especially in as broad as the term "approximately" may be construed) [as per claim 3]; wherein the magnetic element is a return pole (as shown in FIG. 1, for instance) [as per claim 4]; wherein the return pole has a shape selected from the group consisting of rectangular, round, and elliptical (as shown in FIG. 1, for instance, i.e., rectangular) [as per claim 5]; wherein the magnetic element is a reader shield (as shown in FIG. 1, for instance) [as per claim 6]; wherein the main pole is formed of magnetic material (line 66 in column 12 thru line 3 in column 13, for instance) [as per claim 7]; and wherein the magnetic element is formed of magnetic material (lines 55-57 in column 12, for instance) [as per claim 8]. With respect to the intended use limitations appearing in lines 1-2 of claim 1, note that a recitation with respect to the manner in which a claimed apparatus (i.e., "transducing head") is intended to be employed (i.e., "to write data to a magnetic medium exhibiting a coercive force") does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations, *Ex parte Masham*, 2 USPQ2d 1647 (PTO BPAI 1987).

With respect to claims 21-23, Koike teaches a perpendicular write head comprising a main magnetic pole (11); a second magnetic element (7/8), separated from the main magnetic pole (as shown in FIG. 1, for instance); and means (lines 55-65 in column 12, for instance, i.e., the permeability of layer 7 is increased with respect to layer 8, for instance, in at least an equivalent structural sense) for reducing a peak magnetic field at a trailing edge of the second magnetic element to below a coercive force of a magnetic medium (i.e., dependent upon selection of the unclaimed magnetic medium) in order to reduce side writing at the second magnetic element [as per claim 21]; wherein the means for reducing a peak magnetic field comprises regions of different permeability within the second magnetic element (lines 55-65 in column 12, for instance, i.e., the permeability of layer 7 is increased with respect to layer 8), with a region (8) having a highest permeability at an edge (on layer 8) furthest from the trailing edge (as shown in FIG. 2, for instance, i.e., layer 8 is furthest from the trailing edge) [as per claim 22]; and wherein a ratio of permeability between adjacent regions is approximately constant (lines 55-65 in column 12, for instance, i.e., since there are only two layers, the permeability between adjacent layers would be approximately constant especially in as broad as the term "approximately" may be construed) [as per claim 23]. With respect to the intended use limitations appearing in lines 2-3 of claim 21, note that a recitation with respect to the manner in which a claimed apparatus (i.e., "perpendicular write head") is intended to be employed (i.e., "to write data to a magnetic medium exhibiting a coercive force") does not differentiate the claimed apparatus from a

prior art apparatus satisfying the claimed structural limitations. See *Ex parte Masham*, supra.

4. Claims 9-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoshi et al. (US 6,025,978).

Hoshi teaches a transducing head comprising a main pole (12); and at least one magnetic element (10) spaced from the main pole (as shown in Figures 5, 8 and 9, for instance), wherein the magnetic element provides a potential return path for a magnetic field produced by the main pole and is formed of at least three layers (as shown in Figure 8, for instance), each succeeding layer having greater permeability (as shown in Figure 8, for instance, i.e.,  $m > l$ ), with a highest permeability at an edge (m) of the magnetic element furthest from the main pole (as shown in Figure 8, for instance) [as per claim 9]; wherein a ratio of permeability between adjacent layers is approximately constant (as shown in Figure 8, for instance, i.e., especially in as broad as the term “approximately” may be construed) [as per claim 10]; wherein the magnetic element is a return pole (as shown in Figure 8, for instance) [as per claim 11]; wherein the magnetic element is a reader shield (as shown in Figure 8, for instance) [as per claim 12]; wherein the main pole is formed of magnetic material (lines 19-20 in column 6, for instance) [as per claim 13]; and wherein the magnetic element is formed of magnetic material (lines 18-20 in column 6, for instance) [as per claim 14].

***Allowable Subject Matter***

5. Claims 15-18 are allowable over the prior art of record.

***Response to Arguments***

6. Applicant's arguments filed 23 May 2006 have been fully considered but they are not persuasive.

With respect to claims 1-8, the applicant argues that Koike does not teach that "a peak value of a magnetic field flowing through a potential return path during a write operation is less than a coercive force of the magnetic medium to which data is being written by the transducing head." This argument, however, is not found to be persuasive for the following: The claims merely set forth a "transducing head", per se, and not a transducing head in combination with a magnetic medium. Therefore, the transducing head of Koike only needs the capability of performing the above limitation with respect to an unclaimed magnetic medium. In this instance, Koike teaches a transducing head that has the capability of exhibiting a peak value of a magnetic field flowing through a potential return path during a write operation that is less than a coercive force of a magnetic medium dependent upon selection of the magnetic medium. Additionally, note that a recitation with respect to the manner in which a claimed apparatus (i.e., "transducing head") is intended to be employed (i.e., "to write data to a magnetic medium exhibiting a coercive force") does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. See *Ex parte Masham*, supra.

With respect to claims 21-23, the applicant argues that Koike does not teach "a means for reducing a peak magnetic field at a trailing edge of a magnetic element to below the coercive force of a magnetic medium." This argument, however, is not found to be persuasive for the following: The claims merely set forth a "perpendicular write head", per se, and not a perpendicular write head in combination with a magnetic medium. Therefore, the perpendicular write head of Koike only needs the capability of performing the above limitation with respect to an unclaimed magnetic medium. In this instance, Koike teaches a means (lines 55-65 in column 12, for instance, i.e., the permeability of layer 7 is increased with respect to layer 8, for instance, in at least an equivalent structural sense) that has the capability of reducing a peak magnetic field at a trailing edge of a magnetic element to below a coercive force of a magnetic medium dependent upon selection of the magnetic medium. Additionally, note that a recitation with respect to the manner in which a claimed apparatus (i.e., "perpendicular write head") is intended to be employed (i.e., "to write data to a magnetic medium exhibiting a coercive force") does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. See *Ex parte Masham*, supra.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).




A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Monday-Tuesday & Thursday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Craig A. Renner  
Primary Examiner  
Art Unit 2627

CAR